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REPORT, BY THE

Comptroller General

OF THE UNITED STATES

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EPA's Inventory Of Potential Hazardous Waste Sites Is Incomplete . . .

GAO/RCED-85-75
MARCH 26, 1985

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B-216455

The Honorable James J. Florio
Chairman, Subcommittee on Commerce,
Transportation and Tourism
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

As requested in your August 14, 1984, letter and in subsequent discussions with your office, we reviewed EPA's hazardous waste site identification and evaluation activities. This report discusses EPA and state efforts to discover hazardous waste sites. It also provides information on how federal and state site evaluation and cleanup roles are defined once sites are discovered.

Unless you publicly release its contents earlier, we will make this report available to other interested parties 30 days after the issue date. At that time, copies of the report will be sent to appropriate congressional committees; the Administrator, Environmental Protection Agency; and the Director, Office of Management and Budget.

Sincerely yours,

Charles A. Bowsher

Comptroller General
of the United States

EXECUTIVE SUMMARY

There are about 19,400 hazardous waste sites in the Environmental Protection Agency's (EPA) inventory, and the number is still growing. Many of these sites may be endangering public health and the environment. Concerned about how well EPA and state programs have worked to determine the extent of the site cleanup problem facing the nation, the Chairman, Subcommittee on Commerce, Transportation, and Tourism, House Committee on Energy and Commerce, requested that GAO determine

--what site discovery activities are being carried out by EPA and the states,

--whether states are making EPA aware of the sites they discover, and

--how federal and state site evaluation and cleanup roles are defined.

As agreed with the Chairman's office, GAO's review was conducted in six of EPA's 10 regions and in seven states.

BACKGROUND

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly known as "Superfund") was enacted to address problems caused by hazardous waste sites; it authorizes EPA to evaluate and clean up such sites. Also in 1980, section 3012 was added to the Resource Conservation and Recovery Act requiring states (or if they do not, EPA) to develop inventories of hazardous waste storage and disposal sites and to report the sites to EPA.

EPA's nationwide inventory, called the Emergency Remedial Response Information System, is used as a basis for identifying the worst sites--called National Priorities List sites--which currently number 786 designated or proposed sites. EPA intends to either fund the cleanup of these priority sites or require, through federal enforcement action, the responsible parties to fund cleanups.

RESULTS IN BRIEF

A complete inventory of hazardous waste sites does not exist. EPA reports that there could be many additional hazardous waste sites added to its inventory if aggressive and systematic discovery programs are undertaken. For the most part, EPA has concentrated its resources on evaluating and cleaning up known sites rather than searching for new ones.

Three of the seven states GAO reviewed had systematic discovery programs. Each of the states also identified sites through citizen complaints and other methods. Collectively the states discovered 837 sites. GAO found, however, that not all of these sites had been reported to EPA, including some that may warrant addition to EPA's National Priorities List.

EPA's cleanup authority is broad. Because of limited resources, however, it has decided to generally limit its cleanup activities to sites on the National Priorities List. States nationwide will be responsible for taking cleanup action if necessary at those sites not targeted for EPA action.

PRINCIPAL FINDINGS

Site Identification Efforts

Legislation requires EPA and the states to develop an inventory of potential hazardous waste sites. In 1982 EPA developed an inventory but since then has conducted few continuing site discovery efforts. Because it believed that most potential hazardous waste sites had likely been identified, EPA shifted its emphasis from identifying new sites to evaluating and cleaning up known ones.

More recent EPA reports, however, state that there could be many more potential sites, but their discovery will require targeted, systematic efforts. In addition, the focus and character of EPA's cleanup program are expanding. EPA is beginning to include sites that received less emphasis earlier in the program, such as mining-related sites. Its estimate of the number of sites of potential concern ranges from 130,000 to over 378,000 sites.

California, Connecticut, and New York have conducted systematic searches for sites, and while not yet complete, these states have identified 784 new sites. Florida,

Louisiana, Maryland, and Texas in comparison have not conducted systematic searches for new sites because of limited resources and/or their belief that priority should go to addressing the problems at known sites. Some such efforts, however, are planned in Louisiana and Texas. All seven states have discovered sites through such means as citizen complaints or inspections of active hazardous waste handlers.

Evaluation and cleanup of known sites is important, but without a complete inventory, EPA and the Congress do not know the full extent of the hazardous waste cleanup problem facing the nation. In addition, the public cannot be sure where potential threats to health and the environment are located. EPA intends to conduct additional site discovery efforts but has not yet developed a plan outlining what steps are necessary, the resources and time that will be required, or what role it and the states will play. (See pp. 6 to 17.)

Reporting of Sites to EPA

Legislation also requires the states to submit the results of their inventories to EPA. Most of the 784 sites discovered through the systematic site discovery efforts discussed above have been reported to EPA. Connecticut, Louisiana, and Texas, however, have not reported the existence of 53 sites they had identified through other means, such as citizens' complaints and inspections of active hazardous waste handlers. These sites were not reported because the states believe EPA's site evaluation and cleanup process is too slow and costly and that they can get responsible parties to clean up the sites more quickly and less expensively.

These states also say they use the threat of reporting sites to EPA as a bargaining tool with responsible parties. Seven of the unreported sites, according to state evaluations, may be serious enough to qualify for inclusion on EPA's National Priorities List of sites, which are subject to federal action.

A related issue is that 489 sites reported by states GAO visited had not been included in EPA's inventory by the regional offices

because of an oversight or because attention was given instead to work on sites already on the inventory.

Unless EPA knows of sites and has an opportunity to evaluate them, it may not know if it is dealing with the worst ones. It may also miss the opportunity to use its authority to take emergency action to reduce the hazards at sites pending longer term cleanup actions. (See pp. 18 to 25.)

Federal and State Cleanup Roles

EPA has decided to evaluate the hazards at all sites placed on its inventory and take emergency action at any site which presents an imminent and substantial danger to the public health, welfare, or the environment. It has, however, decided for the most part, to limit federal-financed cleanups and the use of its enforcement powers to sites on the National Priorities List.

EPA projects that under its current criteria for placing sites on this list, less than 10 percent of the sites discovered will receive federal cleanup attention. The states will be responsible for taking actions where necessary under state authorities at the remaining sites. (See pp. 26 to 32.)

RECOMMENDATIONS

GAO recommends that the Administrator, EPA,

--develop a plan laying out what specific steps EPA intends to take to complete a comprehensive inventory of hazardous waste sites, what priority and resources EPA plans to devote to this effort, what the states' role will be, and how long it will take to accomplish these steps.

--encourage the states to report the existence of hazardous waste sites by stressing the importance and need for EPA evaluation of the sites and EPA emergency or other response where necessary.

--emphasize to EPA's regions the importance of incorporating into the EPA inventory sites that are reported by the states.

AGENCY COMMENTS

GAO did not obtain agency comments on this report. GAO did, however, discuss the contents of the report with EPA and state hazardous waste officials and has included their comments where appropriate.

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ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	Environmental Protection Agency
ERRIS	Emergency and Remedial Response Information System
GAO	General Accounting Office
NCP	National Contingency Plan
NPL	National Priorities List
RCRA	Resource Conservation and Recovery Act

CHAPTER 1

INTRODUCTION

The problems associated with the handling of hazardous waste have increasingly concerned our society. Hazardous waste, if disposed of improperly, can present potential dangers to environmental quality and human health. If improperly controlled, such waste can pollute valuable ground and surface waters, contaminate soil, and be released into the atmosphere. The effects of such environmental contamination not only threaten natural resources but also endanger public health.

In order to respond to the problems associated with hazardous waste, the Congress, in 1976, enacted the Resource Conservation and Recovery Act (RCRA), which provides for regulatory controls over the generation, transportation, treatment, storage, and disposal of hazardous wastes. In 1980 the Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which provides response and enforcement authority and a funding mechanism to help clean up problems created by past hazardous waste disposal practices. The Environmental Protection Agency (EPA) is responsible for implementing the RCRA regulatory program and managing the CERCLA cleanup program.

RCRA REGULATES CURRENT HAZARDOUS WASTE HANDLERS

RCRA was enacted to, among other things, regulate the management of hazardous waste and improve waste disposal practices. EPA's regulatory program has established reporting, recordkeeping, performance, and operating standards for each of the approximately 49,500 generators, 12,000 transporters, and 4,900 facilities that treat, store, or dispose of hazardous waste. Under section 3012 of RCRA, a hazardous waste site inventory program is to be carried out by the states. This inventory program is discussed further in this chapter under site discovery efforts.

CERCLA AIMED AT CLEANING UP PAST HAZARDOUS WASTE PROBLEMS

CERCLA was enacted on December 11, 1980, to respond to and pay for the cost of cleanup posed by abandoned or uncontrolled hazardous waste sites.[1] The act (commonly known as

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[1]Any area where hazardous wastes or substances, as defined under CERCLA section 101(14), have been deposited, stored, disposed of, placed, or located without adequate measures for controlling the release of such wastes or substances into the environment. CERCLA also addresses hazardous waste contamination from an accidental spill. Throughout this report the term hazardous waste site is used to mean the location where hazardous wastes or substances have been found or suspected.

"Superfund") authorizes the federal government to respond whenever any hazardous substance, pollutant, or contaminant is released or threatens to be released[2] into the environment. The act provides for a $1.6 billion fund to be accumulated over a 5-year period from taxes on petroleum and certain chemicals ($1.38 billion) and from federal appropriations ($220 million). EPA uses the fund to clean up spilled toxic wastes and hazardous waste sites. Under CERCLA,[3] EPA can either issue or seek an order that responsible parties[4] perform the clean up, or perform the cleanup itself and seek reimbursement of the CERCLA-funded response costs from the responsible parties.

To be eligible for a CERCLA-funded remedial action, a site must be included on EPA's National Priorities List (NPL). The NPL identifies the nation's worst known sites contaminated with hazardous wastes. The sites on the NPL are determined by applying the hazard ranking system;[5] each state is allowed to designate a state priority site regardless of its national ranking.

The act also requires EPA to publish a national contingency plan that outlines how the powers and responsibilities granted by the act will be used.

SITE DISCOVERY

RCRA and CERCLA provide for the identification of abandoned or uncontrolled hazardous waste sites. The major provision in RCRA requiring the discovery of hazardous waste sites is section 3012. This section requires states to undertake a continuing program to compile, publish, and submit an inventory of hazardous waste sites within the state to EPA. The section also authorizes state grants to compile this inventory.

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[2]According to the act, release means spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.

[3]EPA may obtain responsible party cleanup under section 106 or seek reimbursement for its cleanup costs under section 107 of CERCLA.

[4]A person, corporation, or other entity that is (1) a past or present owner or operator of a site and/or (2) a generator or transporter that contributed hazardous substances to a site.

[5]The hazard ranking system is designed to estimate the potential hazard presented by releases or threatened releases of hazardous substances, pollutants, and contaminants.

Various provisions in CERCLA also provide for the identification of such sites. For example, CERCLA section 103(a) requires that persons notify the National Response Center--the national communications center for activities related to response actions operated by the United States Coast Guard--when hazardous substances (in EPA-established reportable quantities) are released into the environment. CERCLA section 103(c) required persons to notify EPA by June 9, 1981, of the existence of certain hazardous waste treatment, storage, and disposal facilities.

EPA maintains a list of potential hazardous waste site locations in its Emergency and Remedial Response Information System (ERRIS). The list contains all locations that, according to the information reported to EPA, have reportedly at some time accepted hazardous substances for transport, storage, treatment, or disposal or locations where hazardous substances have either accidentally or illegally been spilled or dumped. ERRIS, according to EPA, is the most complete list of potential hazardous waste site locations that exists. As of December 31, 1984, EPA's ERRIS listed 19,368 potential site locations.

SITE EVALUATION

Once a potential abandoned or uncontrolled site is identified, EPA believes that certain activities should be performed to determine whether a problem does, in fact, exist. If a problem does exist, EPA determines what corrective measures are needed to address it. EPA uses three steps to determine what actions are required. First, potential sites receive a preliminary assessment. Second, if appropriate, a site inspection is performed. Finally, those sites likely to pose serious problems are ranked using EPA's hazard ranking system.

Preliminary assessments include an initial evaluation of readily available site information. The purpose of these assessments is to provide the preliminary data and evaluations required to determine whether further action is necessary, emergency action is called for, or additional investigation is needed.

A site inspection builds on information collected during the preliminary assessment phase and may include site monitoring, surveys, and testing. The major objectives are to determine if there is any immediate danger to persons living or working near the facility and to gather sufficient data to evaluate the site for possible inclusion on the NPL.

EPA's hazard ranking system analyzes potential exposure from five potential "pathways": (1) groundwater, (2) surface water, (3) air, (4) direct contact, and (5) fire and explosion. A score is developed for each of the first three pathways; the last two are used to identify situations that require emergency action. The scores are weighted on the basis of the density of

the potentially affected population and the volume of wastes. Emergency actions can be taken at any point in the process if warranted. EPA will place a site on the NPL if the site scores 28.5 or higher. This score was originally selected to yield an initial NPL of at least 400 sites--a minimum requirement under CERCLA.

OBJECTIVES, SCOPE, AND METHODOLOGY

This report responds to an August 14, 1984, request from the Chairman, Subcommittee on Commerce, Transportation, and Tourism, House Committee on Energy and Commerce, who expressed concern about the early phases of the CERCLA cleanup process. Specifically, the Chairman asked us to address the following questions:

--What continuing hazardous waste site identification activities are being carried out by EPA and the states?

--Is the existence of hazardous sites identified by the states being adequately and promptly communicated to EPA?

--Once sites are identified, how are they evaluated, and how are federal and state cleanup roles defined?

We agreed with the chairman's office to conduct our review at EPA headquarters in Washington, D.C.; EPA regions I (Boston, Mass.), II (New York, N.Y.), III (Philadelphia, Pa.), IV (Atlanta, Ga.), VI (Dallas, Tex.), and IX (Sacramento, Calif.); and in the following one or two states within each region: Connecticut (I), New York (II), Maryland (III), Florida (IV), Texas and Louisiana (VI), and California (IX). Our work covered 6 of the 10 EPA regions and provided geographic distribution for both regions and states. The states selected provide a range from a relatively small number of known hazardous waste sites in Connecticut and Louisiana to a relatively large number of sites in the other five states. Collectively, the states visited have 23 percent of the total number of sites on EPA's ERRIS inventory and 25 percent of the designated or proposed NPL sites.

To identify what hazardous waste site discovery activities are being carried out by EPA and the states, we first reviewed the applicable CERCLA and RCRA legislative requirements. We then reviewed how these requirements were being met. We also reviewed how EPA developed its ERRIS inventory and discussed with EPA headquarters and regional officials any other current or planned site identification efforts. Where available, we reviewed documentation describing EPA's past, current, and planned site discovery efforts. In the states, we interviewed those officials responsible for site discovery efforts and reviewed applicable state legislation and other documentation describing their site discovery programs. We also reviewed the results of the site discovery efforts.

To determine whether state-identified sites were being communicated to EPA, we reviewed applicable reporting requirements and the reporting methods used. We also interviewed state and EPA regional officials to determine the extent to which states reported potential hazardous waste sites and EPA's use of this data.

In order to describe how sites, once identified, are evaluated and how federal and state cleanup roles are defined, we reviewed the applicable provisions of CERCLA that address the various authorities, roles, and responsibilities assigned to EPA. We also reviewed EPA's national contingency plan required by CERCLA, with emphasis on the portions addressing site evaluation and the delineation of appropriate roles and responsibilities of federal, state, and local government. In addition, we reviewed EPA's December 1984 reports on (1) the record of state participation in the Superfund program, (2) the effectiveness of the program, and (3) the extent of the hazardous release problem and future funding needs. (These reports were required by CERCLA.) Finally, we interviewed EPA and state officials regarding how sites are evaluated, how cleanup roles are defined, and how both have evolved since CERCLA's passage in 1980. As agreed with the chairman's office, we focused our efforts in this area on the early stages of the site evaluation process, before sites are placed on the NPL. Once sites are on the NPL, a more rigorous evaluation process takes place, the objective being to determine appropriate cleanup actions and costs.

As requested by the Chairman, we did not obtain written comments on this report. We did, however, discuss the report's contents with each state's program officials involved in administering hazardous waste site identification and evaluation programs and their counterparts in the EPA regional offices and headquarters. Where applicable, we have included their views.

Our work was conducted from August 1984 through December 1984. We made our review in accordance with generally accepted government auditing standards.

CHAPTER 2

ADDITIONAL HAZARDOUS WASTE SITE DISCOVERIES ARE LIKELY

Section 3012 of RCRA requires each state to compile an inventory describing the location of each hazardous waste site within the state. The provision also requires EPA to compile the inventory in states that fail to comply with this requirement. The Congress enacted the requirement in 1980 so that a comprehensive and reliable information base would be developed regarding the hazardous waste cleanup problem facing the nation. To date, a comprehensive nationwide inventory does not exist.

EPA and the seven states we visited have made varying efforts to discover sites and maintain hazardous waste site inventories. In 1983, when EPA implemented a state grant program under section 3012, it believed that the vast majority of hazardous waste sites had likely been discovered and accordingly assigned low priority to both its continuing new site discovery efforts as well as similar state efforts funded by EPA grants. EPA gave higher priority to evaluating the potential hazards at known sites and cleaning up those sites posing the greatest danger. EPA now estimates, however, that the number of undiscovered potential sites may range from 130,000 to over 378,000. State officials also acknowledge that a number of sites are yet to be discovered. Without a comprehensive inventory, the actual extent of the problem remains unknown, and people living near undiscovered sites may remain uninformed about these sites' potential dangers.

CONGRESS REQUIRES HAZARDOUS WASTE SITE INVENTORY

In 1980 the Congress amended RCRA by adding section 3012, which requires each state to

> "as expeditiously as practicable, undertake a continuing program to compile, publish, and submit to the [EPA] Administrator an inventory describing the location of each site within such state at which hazardous waste has at any time been stored or disposed of."

The amendment also requires EPA to implement such a program in any state that did not meet this requirement. The Congress authorized $20 million to be appropriated for state grants to carry out the site inventory program.

EPA SITE DISCOVERY AND INVENTORY EFFORTS

During 1982 EPA compiled an inventory of potential hazardous waste sites on the basis of existing data bases and the results of a site owner/operator reporting program. Since

then, EPA has given low priority to continuing site discovery programs because it believed that through previous discovery efforts, the majority of potential hazardous waste sites had been identified. More recent EPA reports, however, indicate that 378,000 or more additional sites could contain hazardous waste.

EPA's early inventory efforts

EPA's current ERRIS inventory of about 19,400 potential sites is a compilation of several different data bases. When originally compiled in 1982, it contained 9,500 sites from the following sources: (1) 3,200 sites from an existing hazardous waste site tracking system operated by EPA's Office of Enforcement; (2) 2,300 sites where owners or operators of active hazardous waste treatment, storage, or disposal facilities notified EPA of their intent to handle hazardous waste but then failed to apply for and obtain a final permit;[1] and (3) 4,000 sites where owners or operators of inactive hazardous waste sites or transporters that had delivered wastes to these inactive sites notified EPA as required by CERCLA section 103(c). Since 1982, sites have continued to be added to the list resulting from state discovery efforts; citizens' reports of suspected sites; and reports from police, fire, health, and other state and local officials. As discussed below, however, EPA has conducted few other systematic continuing site discovery efforts.

EPA assigns low priority to continuing site discovery efforts

In June 1982, 2 years after the RCRA amendment requiring state or EPA hazardous waste inventories, we reported on the progress in developing such inventories.[2] At that time we reported that a national hazardous waste site inventory did not exist. We also reported that state officials believed that additional funding was needed to adequately inventory and assess sites but that the EPA Administrator had not requested appropriation of the $20 million for state grants authorized in 1980. We pointed out that while EPA requested $5 million as part of its fiscal year 1982 budget appeal to the Office of Management and Budget, this request was denied. In the fiscal year 1983 Appropriations Act for EPA (Public Law 97-272), however, the Congress appropriated $10 million for carrying out

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[1]RCRA requires the owners or operators of such facilities to apply for and obtain a permit. If a facility was in operation on or before November 19, 1980, however, and it notified EPA of its intent to continue to handle hazardous waste, the facility could continue to operate under interim status, until the final permit was issued (or EPA denied the application).

[2]Environmental Protection Agency's Progress in Implementing the Superfund Program (CED-82-91, June 2, 1982).

section 3012.[3] The conference report for the appropriation act states that

> "The committee of conference is aware that in many areas delays have been experienced in the discovery, investigation, and evaluation of hazardous waste sites. This $10,000,000 is a one-time, non-recurring appropriation to assist States in completing the site survey and inspection process." (H.R. Rep. No. 891, 97th Cong., 2nd Sess. 8 (1982))

In its February 7, 1983, guidance implementing the grant program, however, EPA stated that it would not establish separate requirements for inventorying sites under RCRA section 3012 but instead would use the funds to support the ongoing process for site discovery, assessment, and inspection under provisions of CERCLA. EPA identified the activities allowed to be conducted with the funds under section 3012, ranging from site discovery to various types of site evaluations, to searches for responsible parties. EPA stated that because considerable effort had already been devoted to discovering sites, principal emphasis should go to assessing known sites in order to determine the priority for cleanup rather than investigations to discover new sites. In subsequent grant guidelines, EPA stated that because of past EPA and state efforts, it was likely that the vast majority of potential hazardous waste sites had been identified.

Although EPA was free to assign known site evaluations higher priority for the expenditure of grant funds, this action may have reduced the states' incentive and ability to conduct the required inventories to determine if additional sites exist. State site discovery and inventory efforts are discussed later in this chapter.

In establishing guidelines for using the section 3012 grant funds by the states, EPA assigned the highest priority for expenditure of the funds to conducting preliminary assessments. Site inspections received second priority. Responsible party searches at known sites received third priority. Site discovery was assigned fourth priority. The seven states we visited received about $2.6 million in section 3012 grants. About $134,000, or 5.2 percent, was used specifically for site discovery.

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[3]The source of the $10 million was the Hazardous Substance Response Trust Fund established under CERCLA. EPA's guidance document implementing the grant program contained EPA's view that since Congress considered the issue of hazardous waste site inventories in the context of the CERCLA appropriations and provided support for such activities from the CERCLA response fund, it intended the section 3012 activities to benefit the purposes of both RCRA and CERCLA.

Many sites may remain undiscovered

Although EPA has given continuing site discovery efforts a lower relative priority, it now believes that many hazardous waste sites have not been identified. According to a December 1984 report required by CERCLA,[4] EPA stated that the sources of new sites will include traditional sources such as municipal and industrial landfills, which require intensive record searches to identify their location, the type of materials they were receiving, and their ownership. In addition, the report said that the focus and character of the cleanup program are expanding to cover some sites that received less emphasis earlier in the program, such as mining-related wastes. EPA has identified the following major categories where new site discoveries are possible and has estimated the number of sites of potential concern within each category:

Potential Sources of Additional Sites

Category	Number of sites of potential concern
Currently operating hazardous waste treatment, storage, and disposal facilities	605
Municipal landfills	34,000 - 52,000
Industrial landfills	75,000
Mining waste sites	9,770 - 63,770
Leaking underground storage tanks containing nonpetroleum products	11,250 - 187,500
Total	130,625 - 378,875

In arriving at the above categories, EPA estimated that as many as 1.3 million sites might have to be discovered and evaluated to determine if they are problem sites.

In addition to the above major categories, EPA has identified other categories for which reasonable estimates do not exist. The sites in these additional categories could add to the total number of sites if policy changes or changes in

[4]Extent of the Hazardous Release Problem and Future Funding Needs, EPA Office of Solid Waste and Emergency Response, December 1984.

program emphasis occur. These additional categories include contamination from (1) underground storage tanks containing petroleum products that are currently not covered by CERCLA, (2) agricultural uses of pesticides, (3) radioactive waste, (4) non-workplace asbestos, (5) single-party sites such as wood preservatives in log homes, and (6) naturally occurring hazardous substances.

EPA concludes that until systematic identification and investigation of these many different types of problems are undertaken, it is impossible to estimate the total number of sites that could become potential cleanup sites.[5]

EPA is conducting several focused site discovery efforts

EPA is currently developing or employing methods to evaluate specific industries that are more likely to involve hazardous release problems that may require cleanup action. For example, EPA is conducting a pilot program to identify coal gasification sites. Such sites are usually located at old or abandoned urban power plants that may, according to EPA's Chief, Discovery and Investigation Branch, contain coal tar residues. Similar efforts are focused on wood treatment and other types of facilities. These efforts are not, however, designed to cover the large numbers of potential sites in the categories listed above.

EPA does not have a site discovery plan

While EPA has reported that many sites remain to be identified, in keeping with its emphasis on evaluating and cleaning up known sites, it has not developed a site discovery plan of action that identifies the steps needed, the resources that would be required, or the time needed. The extent of EPA's site discovery activity appears to be related to the available cleanup resources. The Chief, Discovery and Investigation Branch, told us that EPA has more than enough sites to evaluate and clean up and that he would like to see a discovery program that discovers enough sites to keep up with the workload capabilities of the current site evaluation and cleanup program.

EPA's December 1984 report, however, noting the potential for dramatic increase in the size and focus of the cleanup program, stated that serious questions are being raised about existing program priorities including what resources should be devoted to discovery and investigation efforts and how these efforts should be focused. The report did not attempt to answer these questions, however.

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[5]An Office of Technology Assessment study, dated March 1985, entitled Superfund Strategy, provides additional perspectives on the number of hazardous waste sites likely to exist in the nation.

STATE SITE DISCOVERY AND INVENTORY EFFORTS

Although EPA has emphasized evaluation and cleanup of known sites rather than the discovery of new ones, California, Connecticut, and New York have or are in the process of conducting their own systematic discovery/inventory programs. These states have collectively discovered 784 new sites not on EPA's inventory. In comparison, Florida, Louisiana, Maryland, and Texas have conducted limited discovery activities outside of investigating complaints or looking for sites while conducting inspections of active hazardous waste handlers. Officials in these four states explained that they either did not have the resources to establish a systematic discovery/inventory program or they felt that priority should be given to addressing the problems at known sites.

All seven states acknowledged that undiscovered sites still exist in each state. California, Connecticut, and Louisiana officials indicated that they need additional EPA grants to identify these sites. Maryland and Florida officials also said they need additional site discovery funds, but if additional funds did become available, they said they would prefer to use the funds to assess the problem at known sites rather than look for new sites. New York officials said that additional resources would speed up completion of their existing discovery/inventory process. Texas has received approval from EPA to use grant funds for site discovery work at creosote plants and aerial spray applicator facilities. Specific state site discovery efforts are discussed below.

California

The California Department of Health Services organized the abandoned sites project in 1979 to systematically search for old deposits of hazardous waste. The project began with a pilot study of two industrial counties and eventually expanded to include 30 of California's 58 counties.

The original abandoned site project listing contained about 25,000 sites discovered using telephone books, business registers, listings of active companies likely to produce hazardous waste, tips from citizens, agency records, aerial photographs, and staff observations. The Department of Health Services determined that over 20,000 of these sites did not present a problem on the basis of such things as questionnaires to companies, drive-by inspections, and agency record searches. Of the 4,700 remaining sites, the California RCRA Grant Unit Coordinator explained that 504 are a potential problem, are not on ERRIS, and need further evaluation. Further analysis of the data that was gathered needs to be done for the other 4,200 sites to determine if they are potential sites and need to be included on ERRIS. The coordinator estimated that about one-third of these sites (1,400) will likely be determined to be a problem.

The project was funded out of the department's operating budget and an EPA grant under the areawide waste treatment management continuing planning program, administered under section 208 of the Federal Water Pollution Control Act (Public Law 92-500).[6] Also, $65,000 of the state's $558,000 section 3012 grant was allotted to continue the project in Ventura and Los Angeles counties. The remainder of the grant was allotted for conducting evaluations at known sites.

The abandoned site project would slow considerably if additional federal resources do not replace the section 3012 funds, according to the Chief of the Program Management Section, Toxic Substances Control Division. The chief indicated that the state has not had additional resources available to continue the project and hoped that EPA would continue funding the project. The chief also indicated that while he believes they have identified the worst and most obvious sites in the state, there are probably still undiscovered sites. He would like to do discovery work in the unsurveyed counties and go back to the heavily industrialized counties already surveyed. He explained that occasionally they still identify sites in the counties already surveyed as part of the project.

Connecticut

In 1979 the Connecticut legislature mandated that a statewide hazardous waste site inventory be completed by January 1981. The Assistant Director in Connecticut's Department of Environmental Protection, Hazardous Waste Materials Section, stated that because of insufficient funding, only the first phase of the inventory was completed by January 1981. The effort, however, continues; and state officials hope that the second phase, or the balance of the inventory, will be completed in June 1985.

Connecticut developed a list of 3,027 potential hazardous waste sites in the state by using a questionnaire sent to officials in every town requesting the location of possible hazardous waste sites, and 14 other sources such as manufacturing directories. The first phase, completed in January 1981, covered 85 of the state's 169 towns. After visiting the towns and reviewing the data, the Connecticut Department of Environmental Protection reported to the state legislature that there were 145 hazardous waste sites in the 85 towns and an additional 109 sites in the other 84 towns that the department already knew about, for a total of 254 hazardous waste sites. Of these 254 sites at least 89 were new and not on ERRIS at the time of discovery.

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[6]This program is aimed at identifying areas that, as a result of urban-industrial concentrations or other factors, have substantial water quality control problems.

The second phase of the inventory covers the other 84 towns; and while some potential sites have been identified, Connecticut has not yet determined which of these sites are not on ERRIS. This phase is expected to be completed by June 30, 1985.

Connecticut's inventory has been financed by using its own resources including revenue generated by the state's tax on hazardous waste generators. The state's $128,000 section 3012 grant was used to conduct preliminary assessments of known sites. The Assistant Director of the Hazardous Waste Materials Section indicated that additional resources are needed to complete the second phase of the inventory in a timely manner. The assistant director believes that they have identified the worst and most obvious sites, but believes that more sites still need to be identified. He based this belief on the fact that although the second phase of the inventory is not yet complete, some potential sites have already been identified.

Louisiana

Louisiana's site discovery program has been more limited than California's, Connecticut's, and New York's. Although not complete, its discovery activities include (1) a review of existing aerial photographs, (2) a review of hotline calls, and (3) a questionnaire to be sent to local governments. Louisiana's site discovery program was totally funded by its section 3012 grant. About $20,000 of the $189,000 grant was allocated for site discovery, and the remainder of the funds was to be used for evaluating the problems at known sites. Louisiana has not conducted a more extensive site identification program because, according to the Administrator of the Inactive and Abandoned Sites Division in the state's Department of Environmental Quality, it does not have sufficient resources. Sites continue to be identified, however, through state inspections of active hazardous waste facilities and citizen phone calls. The administrator indicated the need for additional RCRA section 3012 grants to fund a site discovery program.

The administrator believes that Louisiana has discovered the worst and most obvious sites. But he also believes that new sites will probably be added each year because the state enacted a law requiring generators and disposers of hazardous waste to report past disposal practices. The new law became effective on September 3, 1984.

New York

In 1979 the New York legislature enacted a law requiring a compilation of a registry of hazardous waste sites and annual reporting of the results to the legislature.

New York's 62 counties and the nine regional offices of the state's Department of Environmental Conservation play a role in the development and updating of the registry. Telephone numbers were established to accept site referrals from the public, and

county health and planning departments assisted in the effort. In some cases, aerial photographs were used to compile the registry.

In addition to compiling the registry, the department is also sending a questionnaire to 14,000 handlers of hazardous waste to (1) identify new sites and (2) gain some information about the amount and type of waste at known sites. Further, in order to identify new sites, the department is in the process of reconciling its registry with EPA's ERRIS inventory. A preliminary review indicates that 348 sites on the ERRIS listing are not on the registry, and 191 sites on the registry are not on ERRIS. (Chapter 3 discusses the reconciliation in more detail.) The first registry published in June 1980 listed 680 sites containing known or suspected hazardous waste. According to the Chief of the Bureau of Hazardous Site Control in the Department of Environmental Conservation, because of a lack of funding, the registry was not published again until December 1983 but was updated annually. The December 1983 registry identifies 895 sites.

New York's registry efforts have been financed through the use of EPA grant funds[7] or the revenue generated from the state's tax on hazardous waste generators. The state's $667,000 RCRA section 3012 grant was not used in developing and updating the registry. These funds were to be used to conduct evaluations at known sites. The Chief of the Bureau of Hazardous Site Control did not know what additional resources were needed to complete their registry process. He stated, however, that more resources would help speed up their site identification process. The chief also thought that the worst and most obvious sites had already been identified but that the registry process would identify more sites every year.

Texas

Texas has not conducted a program aimed specifically at site discovery. The Texas Project Coordinator for implementing the RCRA section 3012 program does not consider a specific site discovery program necessary because sites are being discovered through state RCRA field inspection and enforcement activities at active hazardous waste facilities. The coordinator indicated that the state does not need more resources for site discovery, but if he had additional resources, he would use them to evaluate the problems at known sites.

In September 1984, however, the Texas Department of Water Resources requested and EPA approved a $28,000 amendment to the state's section 3012 grant to conduct site discovery activities at 40 to 50 abandoned creosote plants and 1,400 pesticide aerial

[7]These grant funds are in addition to the RCRA section 3012 funds and are intended to help fund the states' hazardous waste regulatory program for active hazardous waste handlers.

spray applicator facilities. The department chose to focus its efforts on these industries because they have caused hazardous waste problems in Texas. As a result of this effort, the Texas Section 3012 Project Coordinator estimated that the department will identify 850 problem sites.

Florida

Florida's Department of Environmental Regulation has conducted no specific site discovery program, but the state's regional planning councils have just begun such a program. The Department's Chief of the Bureau of Operations explained that site discovery is a resource-intensive effort that has very little payback. He indicated that the bureau does not have the resources for such a program, and even if he were to obtain additional resources he would use most of those resources to evaluate known sites rather than look for new ones. He believes the worst and most obvious sites have already been identified.

Of the state's $311,400 section 3012 grant, $20,000 was to be used for site discovery purposes. The remainder of the funds were to be used to evaluate the problems at known sites. According to the grant, however, the state was not to use the $20,000 to look for new sites but was to reconcile its site inventory (a compilation of sites identified through prior federally funded efforts) with ERRIS and report the results to EPA. The Department of Environmental Regulation had not yet done the reconciliation at the time of our review.

Recently, the Florida legislature commissioned some of the state's regional planning councils to identify hazardous waste sites in the state. The councils' efforts are to be reported over a 3-year period ending December 1986. At the time of our review, the program had just begun.

Maryland

Maryland does not have nor does it plan to have a specific site discovery program. In 1984, however, the Maryland legislature enacted a law requiring an inventory of all known sites to be published with biennial reporting to the legislature. In developing the inventory, the Waste Management Administration began with ERRIS because it believed the inventory to be the most accurate available of known sites in Maryland. The administration eliminated duplications and published the resulting list of 167 sites as the first state inventory in August 1984.

The reason Maryland does not have a specific site discovery program, according to the Enforcement Program Administrator of the Maryland Waste Management Administration, is that it does not have the resources to establish one. He stated, however, that even if Maryland did obtain additional resources, evaluating known sites would be a higher priority than discovering new ones. He explained that new sites are identified primarily through citizen complaints and RCRA inspection and enforcement activities at active hazardous waste facilities.

The Chief of the Support Services Division responsible for state cleanup activities believes that the worst and most obvious sites have been identified but there is no way to be sure. He also believes that more undiscovered sites exist simply because new sites are continually discovered. He suggests that if Maryland made a strong effort to identify new sites, more would be found.

RCRA AMENDMENTS REEMPHASIZE THE NEED FOR SITE DISCOVERY EFFORTS

On November 8, 1984, RCRA amendments (Public Law 98-616) were enacted that, among other things, authorized $25 million under section 3012 to help states develop hazardous waste site inventories in fiscal years 1985 through 1988. The House Committee on Energy and Commerce report on the proposed legislation explained the need for the authorization.

> "Testimony before the Committee indicated that there continues to be a need to assist the States in identifying and collecting information about hazardous waste sites in individual States. EPA is required to carry out this responsibility where the State does not. When originally enacted this Section was intended to aid in developing a comprehensive and reliable base of information regarding the scope of the hazardous waste site problem. In some States, this information is still incomplete and these funds will provide the means to complete the necessary data gathering and monitoring activities." (H.R. Rep. No. 198, 98th Cong. 1st Sess. 24 (1983))

EPA has not decided if it will request the authorized funds for fiscal year 1987. EPA's fiscal year 1986 budget, well into preparation when the amendments were passed, does not include a request for appropriation of the funds.

CONCLUSION

The Congress, in 1980 and again in 1984, indicated the need for a comprehensive inventory of hazardous waste sites. Such an inventory does not yet exist. Although EPA and the states we reviewed believe they have identified the worst and most visible sites, EPA and the states also believe that new site discoveries are probable. EPA estimates that the number of potential sites could be over 378,000. In addition, the three states that have conducted active discovery programs identified 784 new sites that are not on EPA's ERRIS inventory.

EPA is conducting some focused or targeted site discovery efforts, but so far it has given primary emphasis, in both its program and in state grants, to evaluating the extent of hazards or cleanup activities at known sites. In keeping with this emphasis, EPA has not developed a plan of action for identifying

the potential sites it says exist. While we believe that evaluations and cleanup of known sites are important, we also believe the Congress needs to know the extent of the problem so that appropriate priorities can be set and resources provided. We also believe that the public needs to know the extent of the problem as well as the locations of possible contamination. Once this is determined, appropriate local, state, and national environmental priorities can be established, and preventive measures, such as the use of bottled drinking water, can be used if deemed necessary.

The Congress has recently authorized an additional $25 million for the RCRA section 3012 hazardous waste site inventory and evaluation efforts for fiscal years 1985 through 1988. In light of this authorization, we believe EPA needs to develop a site discovery plan laying out what steps are necessary to develop the required comprehensive inventory. Such a plan would, among other things, inform the Congress of what actions are needed by EPA and the states to complete the inventory and how long it will take to accomplish. It would also provide a basis for assessing EPA and state progress and performance in developing the inventory.

RECOMMENDATION

We recommend that the Administrator, Environmental Protection Agency, develop a plan laying out what specific steps EPA intends to take to complete a comprehensive hazardous waste site inventory envisioned by RCRA section 3012, what priorities and resources EPA plans to devote to this effort, what the states' role should be, and how long it will take to accomplish.

CHAPTER 3

EPA's HAZARDOUS WASTE SITE INVENTORY DOES NOT CONTAIN ALL KNOWN SITES

In addition to requiring the states or EPA to compile inventories of potentially hazardous waste sites (as discussed in ch. 2), RCRA section 3012 requires the states to submit its inventories to EPA. Three states had not reported at least 53 sites to EPA that they discovered through their routine inspection and enforcement activities of hazardous waste handlers. Some of these sites are potentially serious enough to qualify for the NPL. The states are pursuing their own enforcement actions at these sites to get responsible parties to pay for cleanup, and they believe that their enforcement action will result in quicker and/or less expensive cleanups than if EPA was involved.[1] As part of their enforcement strategy, they sometimes use the threat of reporting the sites to EPA as a tool to negotiate with responsible parties who fear the cost of cleanup actions if EPA is involved.

As indicated in chapter 2, 784 sites that were not incorporated into EPA's ERRIS inventory were discovered by the three states we reviewed with active site discovery/inventory programs. For the most part, the states reported these sites to the appropriate EPA regional office, but the regions had not included the sites on ERRIS because (1) of an oversight, (2) attention was given to higher priority work on sites already on the inventory, or (3) a reconciliation process between the state's inventory and EPA's ERRIS had not yet been completed.

Collectively in the seven states we reviewed, we found 837 sites that were not incorporated into EPA's ERRIS inventory. Unless states report to EPA and EPA incorporates all known sites into its ERRIS inventory, it cannot be sure that it has identified and is addressing the worst sites and cannot tell the Congress and the public the extent of the hazardous waste problem facing the nation. In addition, it could lose the opportunity to evaluate the sites for emergency federal action, such as surface drum removal or perimeter fencing to protect public health or the environment, pending longer term federal or state cleanup actions.

STATES ARE REQUIRED TO REPORT KNOWN SITES

Section 3012 of RCRA requires states to submit to EPA the location of sites within the state where hazardous waste has been stored or disposed. When states report sites, EPA is to

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[1]EPA's site evaluation and cleanup process will be discussed in more detail in ch. 4. We made no attempt, however, to evaluate states' claims that they can obtain quicker and less costly cleanups without EPA involvement.

add these sites to ERRIS, and under its CERCLA authority, it ensures that the site is evaluated to determine the nature and extent of contamination.

The Director of EPA's Superfund Office told us that EPA needs to know the identity of sites in order to select the worst sites for federal cleanup action. EPA's national contingency plan requires it to inspect, evaluate, and rank the hazards at sites in order to develop the NPL, which contains the worst sites. Once sites are added to the NPL, they are eligible for federal cleanup actions (see ch. 4 for a more detailed discussion of EPA's cleanup authority). EPA believes that sites should be evaluated and placed on the NPL even if states are pursuing cleanup action. In a September 1984 amendment to the national contingency plan, EPA stated that the existence of state actions against responsible parties is not justification for excluding sites from the NPL. EPA said that the comprehensiveness and effectiveness of agreements with responsible parties may vary considerably among states, and in some cases, agreements may not be completely consistent with the standards of the national contingency plan. The Chief of EPA's Discovery and Investigation Branch told us that varying quality in state agreements or cleanups is a concern, but he does not know of any study or evaluation of state administered non-CERCLA cleanups.

EPA also needs to know where to exercise its authority to take emergency actions such as perimeter fencing and/or surface drum removal. These actions are generally limited to $1 million in expenditures and are taking no longer than 6 months to complete. The Director of EPA's Superfund Office told us that it is important for the states to report even those sites not serious enough to be included on EPA's NPL list, so that the need for emergency actions can be evaluated. EPA estimates that 50 to 60 percent of all emergency actions occur at non-NPL sites.

The director also told us that the way the RCRA section 3012 grants are allocated was an incentive for states to report sites. The allocation was based on the number of sites each state had on ERRIS. The EPA RCRA Section 3012 Project Manager, Discovery and Investigation Branch, told us that the number of sites reported by the states increased dramatically after the grant allocation process became known and was implemented.

SOME STATES ARE NOT REPORTING ALL KNOWN SITES

Connecticut, Louisiana, and Texas did not report at least 53 sites to EPA for inclusion on ERRIS, including seven sites potentially serious enough to qualify for the NPL. They believed, instead, that they could get responsible parties to pay for needed cleanup actions and that such cleanup actions would be quicker and less expensive than if EPA was involved. As part of their enforcement strategy to obtain cleanup of sites by responsible parties, these states sometimes threaten to report the sites to EPA or nominate the sites for the NPL. They

said that responsible parties fear the potentially increased costs that federal involvement in cleanup may entail. By not reporting the site, these states believe they have a significant enforcement tool.

Connecticut

Connecticut uses the threat of reporting sites to EPA to get responsible parties to take action. According to Connecticut's Assistant Director, Hazardous Waste Management Section, Department of Environmental Protection, EPA involvement in site evaluation or cleanup would result in slower, more expensive cleanups. According to the assistant director, Connecticut does not report hazardous waste sites to EPA unless they (1) are serious enough to be eligible for the NPL and (2) have no identified responsible party or the responsible party cannot afford the cost of cleanup. The assistant director said that by not reporting sites, the state gains an effective enforcement tool.

Under its enforcement strategy, when Connecticut discovers that a hazardous waste site may be contaminating groundwater, it uses state law to order responsible parties to investigate the nature and extent of contamination and mitigate or eliminate the problem.

While reviewing the Connecticut Department of Environmental Protection, Water Compliance Unit's log of sites where the state has attempted to get responsible parties to clean up sites, we identified 39 sites that were not listed on ERRIS. Additionally, Connecticut is not reporting one site that it has preliminarily scored high enough to qualify for NPL status. According to the assistant director, the state is not reporting the site to EPA because it is taking enforcement action against the responsible party.

A Connecticut official stated that there are other disincentives to reporting sites to EPA for inclusion in ERRIS. According to the Principal Environmental Analyst, Hazardous Waste Management Section, reporting sites is not advantageous because the state will ultimately be responsible for cleaning up the vast majority of sites anyway, particularly the smaller sites that may not qualify for the NPL. He also stated that sites are never removed from ERRIS once they have been cleaned up or found to have no contamination and this causes unnecessary public concern.

According to the Chief, EPA region I Site Response Section for Massachusetts, Connecticut, and Vermont, the region was not aware of Connecticut's enforcement strategy of not reporting sites. He said that Connecticut should report sites because EPA needs to evaluate the need to take emergency actions. He also said that at seriously contaminated sites cleanup actions may not meet EPA's assessment of what is needed to clean up the site and that EPA may hold the responsible parties liable for additional cleanup actions.

Louisiana

Louisiana officials' statements concerning their enforcement strategy were similar to those of Connecticut and Texas officials. Louisiana reports sites to EPA only if the state cannot get responsible parties to clean up the site using state laws and regulations, according to the Department of Environmental Quality's Inactive and Abandoned Sites Division Administrator. For example, Louisiana is not reporting seven sites for inclusion on ERRIS because it anticipates successfully negotiating with responsible parties to clean up the site. The division administrator stated that if the state reported these sites to EPA, it would lose negotiating clout and the goodwill of the responsible party. With their enforcement strategy, the division administrator believes Louisiana will achieve a cleanup as good as would be achieved under the federal program, but at a much lower cost to the state and federal government.

As in Connecticut, Louisiana identified other disincentives for reporting sites to EPA. The Inactive and Abandoned Site Division Administrator said that ERRIS often includes sites that do not present a hazard to the public because hazardous wastes never existed at the site or because the site had been cleaned up. He said such sites cause unnecessary public concern and increase the division's workload by having to respond to public inquiries about the site.

Texas

Texas does not report all hazardous waste sites to EPA because it also has an enforcement strategy of threatening to report sites to EPA to get responsible parties to pay for cleanup. According to the Superfund Unit Head, Texas Department of Water Resources, as part of its enforcement strategy, Texas threatens to report the site to EPA or nominate the site for inclusion on EPA's NPL list as a negotiating tool. By threatening to report the site to EPA, Texas believes it has an effective negotiating tool because responsible parties believe that the cost of cleanup under state enforcement actions will be lower than if EPA is involved. On the basis of its experience, Texas believes that the threat of federal involvement results in a viable state enforcement program that not only achieves quicker and less costly cleanups but also allows the federal Superfund to be used for cleanups elsewhere.

Like Connecticut, Texas is not reporting sites potentially serious enough to qualify for the NPL. According to the Solid Waste Enforcement Unit Head, Texas is not reporting six hazardous waste sites on the state's enforcement log, although he believes these sites are serious enough to potentially score above 28.5, the cutoff point to make the NPL. He said that Texas will not report these sites to EPA unless state enforcement actions do not succeed.

Texas is also not informing EPA when it scores sites already listed on ERRIS that could qualify for the NPL, according to the Superfund Unit Head. For example, it has preliminarily scored two sites listed on ERRIS with scores of 31.44 and 34. Texas is not reporting the scores to EPA because it is using them to encourage the responsible parties to clean up the sites. If the responsible parties do not agree, the sites will be nominated for the NPL.

EPA region VI accepts the state strategy of not reporting hazardous waste sites as an enforcement tool. According to the region's Superfund Branch Chief, as long as sites are expeditiously cleaned up, the region would rather not know that states have scored sites higher than 28.5. The branch chief reasoned that if the states do not report the site because they use the threat of federal Superfund participation as a negotiating tool to get responsible parties to clean up sites, then CERCLA's ultimate goal of cleaning up sites is achieved. As stated above, this view is not consistent with EPA headquarter's policy, which requires reporting and inclusion on the NPL when warranted, regardless of state actions.

EPA concerns about non-reporting of sites

EPA officials expressed concern about the states not reporting hazardous waste sites to them. They explained that if states do not report sites (1) EPA cannot conduct site evaluations or emergency removal actions where appropriate to reduce the environmental threat; (2) the public health is at risk if the state does not perform an effective cleanup; (3) the public is not aware that it is at risk; and (4) the responsible party may face additional liability if, at a later date, EPA determines that the site has not been adequately cleaned up.

Additionally, EPA believes that reporting a site does not restrict the state's authority to take cleanup action at that site. States are free to use whatever authorities and resources are available for cleaning up sites or obtaining responsible party cleanup.

Some states are reporting all known sites

California, Florida, Maryland, and New York officials say they routinely report known hazardous waste sites to EPA for inclusion on ERRIS. Except as noted in the following section, California reports new sites to EPA region IX, according to the California RCRA Grant Unit Coordinator. Florida reports new sites to EPA region IV by telephone and mail, according to the Florida Department of Environmental Regulation RCRA Grant Project Coordinator. Florida also provides EPA region IV with a current copy of its hazardous waste site inventory. Maryland reports sites to EPA, according to Maryland's Support Services Division Chief, after screening to ensure they have a legitimate

Bureau of Hazardous Site Control, Department of Environmental Conservation, New York reports sites by providing EPA with a copy of its annually updated registry of hazardous waste sites and its RCRA section 3012 quarterly reports.

Officials in the four states offered the following incentives for reporting sites:

--obtaining federal funding provided under RCRA section 3012,

--assisting EPA in developing a complete list of hazardous waste sites, and

--ensuring that EPA assistance would be available for emergency removal and/or cleanup action.

Apparently Connecticut, Louisiana, and Texas officials did not view these incentives as strong enough to overcome the disincentives to reporting, as outlined above under each state.

EPA IS NOT ADDING ALL SITES TO ITS INVENTORY THAT STATES REPORT

EPA's regional office efforts to incorporate sites into ERRIS are inconsistent. Although California and Connecticut had conducted inventories and had reported the results to EPA regions IX and I, respectively, these EPA regions had not included all the state discovered sites on ERRIS. We identified 489 sites (89 sites in Connecticut and 400 sites in California) that had been reported to EPA but not been included on ERRIS. In contrast, EPA region II is undertaking a joint effort with New York to reconcile the state's inventory with ERRIS and add sites not listed on ERRIS, and EPA region IV is providing funding to Florida to reconcile its inventory with ERRIS and report sites not listed on ERRIS.

EPA region IX

As discussed in chapter 2, California has undertaken a site discovery effort and compiled an inventory called the "abandoned sites list." After surveying 25,000 sites, California narrowed the list to 504 sites. In awarding RCRA section 3012 grant funding to California, EPA region IX agreed to allow the state to identify the 400 worst sites so they could receive preliminary assessments. The Department of Health Services then asked its district offices to identify the 400 most highly suspect hazardous waste sites on the list. The department's district offices identified 400 such sites.

In January 1984 the department submitted these high priority suspect sites to EPA region IX for inclusion on ERRIS. As of October 1984, however, these sites had not been added to ERRIS. The department has not reported the other 104 sites to

EPA because, to date, EPA has asked only for the 400 most highly suspect sites.

According to EPA region IX's Acting Chief of State Programs, the region, because of an oversight, has not added the highly suspect sites identified by California to ERRIS. She explained that the oversight occurred because of a change in the project officer responsible for California. Steps are being taken now to include the sites on ERRIS.

EPA region I

As previously discussed in chapter 2, Connecticut is conducting a statewide, town-by-town inventory of all potential hazardous waste sites. Connecticut compiled the first phase of the inventory in January 1981. Although under its current enforcement strategy Connecticut is not routinely reporting sites to EPA, Connecticut did provide a copy of its partially complete 1981 inventory to EPA. We, however, identified 89 sites out of 254 listed on this state inventory that are not listed on ERRIS.

According to EPA region I's section 3012 coordinator, EPA region I obtained a copy of the inventory and placed the sites on the site tracking system, a data base that preceded ERRIS and that was later included in the ERRIS data base. Apparently, the sites did not survive the conversion to ERRIS. The region's section 3012 coordinator believes that the region probably did not reconcile Connecticut's list with ERRIS because the region's time and resources were committed to evaluating known hazardous waste sites already on ERRIS as well as working with NPL sites.

EPA regions II and IV
reconciling inventories

Although there are discrepancies between New York's registry of hazardous waste sites and ERRIS, EPA region II is actively involved in a joint EPA/state effort to reconcile New York's inventory with ERRIS, according to the Chief of EPA region II's Site Investigations and Compliance Branch. New York has assigned a staff member to compare the inventories and determine sites missing from each list. It is adding ERRIS sites not listed on its registry of hazardous wastes and is reporting registry sites not listed on ERRIS to EPA. New York's review shows 191 registry sites not listed on ERRIS and 348 ERRIS sites not listed on the state's registry. A New York Department of Environmental Conservation, Solid Waste Management Specialist stated that the results are preliminary because each site must be confirmed on a site-by-site basis with EPA. The Management Specialist has met with EPA's region II Document Control Assistant to begin this process. According to the assistant, when the reconciliation is completed, EPA will incorporate the state-identified sites into ERRIS.

Although not actively involved in a joint federal/state effort as is EPA region II, EPA region IV has provided $20,000 under RCRA section 3012 for Florida to reconcile its inventory with ERRIS. As of October 1984, the project had not yet begun.

EPA region III has no need to reconcile ERRIS with Maryland's state inventory of hazardous wastes because Maryland is using ERRIS as the basis for its state inventory.

CONCLUSION

RCRA section 3012 requires states to submit to EPA an inventory describing each hazardous waste site within the state. Some states are not reporting the existence of known sites to EPA because they believe they can use enforcement actions to get the responsible parties to clean up the sites more quickly and less expensively than under EPA's site evaluation or cleanup process. In a few cases, states are not reporting to EPA or nominating for inclusion on EPA's NPL list sites they believe are serious enough to warrant federal evaluation and cleanup action. These states sometimes use the threat of reporting sites to EPA as a tool to negotiate with responsible parties who fear the cost of cleanup actions if EPA is involved.

In some cases states have reported sites to EPA, but the EPA regions have not always incorporated the sites into the ERRIS inventory because (1) of an oversight, (2) attention was being given instead to work on sites already on the inventory, or (3) a reconciliation process between ERRIS and state inventories was not yet complete.

In order to report to the Congress and the public the extent of hazardous waste problems facing the nation, we believe that EPA should strive to keep its ERRIS inventory as complete and up to date as possible. Further, if known sites are not reported to EPA or are excluded by the regions, EPA could lose the opportunity to evaluate the sites for possible inclusion on the NPL (and resulting federal funding and oversight of cleanup actions) or to take emergency federal action to protect public health and the environment.

RECOMMENDATION

We recommend that the Administrator, Environmental Protection Agency, encourage the states to report the existence of hazardous sites by stressing the importance and need for EPA evaluation of the sites and EPA emergency or other response where necessary. We also recommend that the Administrator emphasize to the EPA regions the need to incorporate into the EPA inventory sites that are reported by the states.

CHAPTER 4

EPA AND STATE SITE EVALUATION AND CLEANUP ROLES

CERCLA provides EPA with far-reaching authority to clean up hazardous waste sites. EPA intends to use this authority to evaluate the potential hazards associated with all sites placed on its ERRIS inventory. EPA has encouraged the states, through RCRA section 3012 financial assistance, to share the responsibility of conducting these evaluations. Because of limited resources, however, EPA has not committed itself to cleaning up all of the nation's hazardous waste sites. While EPA will take emergency action at any site that presents an immediate and significant risk to health or the environment, it plans to limit its permanent, long-term cleanups to NPL sites. As of February 1, 1985, 786 sites were designated or proposed as NPL sites out of a total ERRIS inventory of about 19,400 potential sites. EPA believes that the states should take actions under state authorities at non-NPL sites, and it does not intend to oversee these state-led cleanup actions.

EPA AND STATE ROLES IN EVALUATING SITES

Under CERCLA, EPA is required to identify the worst uncontrolled hazardous waste sites in the nation. To meet this requirement, EPA has instituted a site discovery and evaluation process designed to characterize the relative risks presented at sites. Until recently, EPA had conducted all site evaluations for those sites listed on ERRIS. With the advent of RCRA section 3012 grants in fiscal year 1983, however, states have played an increasingly important role in the site evaluation process.

Phased approach used to conduct site evaluations

CERCLA section 105 requires EPA to include in the national contingency plan methods for discovering and investigating facilities where hazardous substances are located. In addition, this section requires that EPA (by Presidential delegation) identify at least 400 sites in the nation warranting the highest priority for remedial action. Toward this end, EPA has implemented a phased site evaluation process.

This process, as defined in the national contingency plan, is designed to characterize the risks presented at sites, as well as prioritize sites for possible cleanup action under Superfund. Under EPA's site evaluation process, all potential sites in the nation are required to undergo a preliminary assessment to determine whether additional site evaluation actions need to be taken. Next, if appropriate, a site inspection is performed to further characterize a site's hazards. During a site inspection, if a site is suspected of being potentially

eligible for the NPL, EPA scores the risks presented at a site using its Hazard Ranking System. Should a site score high enough, it is placed on the NPL and an appropriate cleanup action is planned and implemented. As stated in chapter 2, an emergency action may be taken at any point in the process if a site is judged to present an immediate and significant risk to health or the environment.

Preliminary assessment

Preliminary assessments include an initial evaluation of readily available site information. The purpose of these assessments is to provide the preliminary data and the evaluations required to determine whether (1) no further action is necessary, (2) emergency action is called for, or (3) additional investigation is needed. Information obtained during a preliminary assessment seeks to determine (1) hazardous substances present; (2) routes of potential exposure, such as surface water or groundwater; (3) potentially affected human populations and natural resources; (4) past and present site or facility waste management practices; and (5) potential parties responsible for the contamination.

EPA plans to conduct preliminary assessments on all of the approximately 19,400 sites on the ERRIS inventory. According to EPA, as of December 31, 1984, 11,882 (61 percent of ERRIS sites) preliminary assessments had been completed. Of those assessments completed, 4,048 were determined to need no further action, and 2,130 were categorized as pending, which means additional information is needed to determine if a site inspection is needed. The other 5,704 sites were determined to need a site inspection. EPA's target is to have all preliminary assessments completed by the end of fiscal year 1986.

Site inspection

Site inspections build on information collected during the preliminary assessment phase and may include site monitoring, surveys, and testing. A site inspection is conducted at a site when the preliminary assessment shows that one is warranted. A major objective is to determine if there is any immediate danger to persons living or working near the facility. Information that may be obtained during a site inspection includes (1) determining the need for emergency action; (2) assessing amounts, types, and location of hazardous substances stored; and (3) assessing potential for substances to migrate from areas where they were originally located. A complete site inspection generally provides adequate data to apply the EPA Hazard Ranking System.

The activities conducted for site inspection are considerably more extensive than those for the preliminary assessment. In particular, site inspections require environmental sampling to identify the presence of particular hazardous materials and whether off-site migration of the substances has occurred.

Depending upon the time it takes to analyze samples and ensure quality of results, it may take from 1 to 6 months to complete a site inspection.

As of December 31, 1984, according to EPA, 4,045 site inspections had been completed. EPA's target is to complete all site inspections by fiscal year 1987.

Hazard Ranking System

EPA's NPL fulfills the CERCLA requirement that the President identify at least 400 sites in the nation warranting the highest priority. To determine which sites are the highest priority, EPA developed a hazard ranking system to provide a systematic approach for setting priorities among several widely varying hazardous waste sites.

The ranking system measures the relative severity of the problems at the site and the likelihood and potential magnitude of human and sensitive environmental exposure to hazardous substances. A score is developed for each release or potential release on the basis of its impact on groundwater, surface water, or air. These three scores are then weighted and combined to yield an estimated hazard ranking score. The scores can range from zero (least hazardous) to 100 (most hazardous). The system was not designed to distinguish accurately between the risks presented by two sites whose scores are similar. But it does provide an indicator of different levels of risks between sites with large differences in scores. The hazard ranking scores are weighted to increase the scores given to sites that threaten densely populated areas or that contain large volumes of waste.

Generally, sites are listed on the NPL only if a site receives a score of 28.5 or more on the Hazard Ranking System (excepting a state's designated priority site, regardless of its score). This cut-off score was not chosen on the basis of any risk analysis, and sites that score below 28.5 could also present environmental or health risks. The 28.5 score was originally selected to yield an initial NPL of at least 400 sites; a minimum requirement under CERCLA. Additional sites are added if they subsequently score 28.5 or higher. As of February 1, 1985, 786 sites had been either designated or proposed as NPL sites.

EPA and states share site evaluation responsibilities

EPA and the states are sharing the responsibility for conducting site evaluations. Prior to mid-1983, EPA had been responsible for conducting most preliminary assessments and site inspections for sites on ERRIS. These site evaluation duties

were generally conducted by EPA's Field Investigation Team contractors. States have also been conducting site evaluations, but with the advent of RCRA section 3012 grants, the states have assumed greater responsibility. Using RCRA section 3012 grant money, states have been conducting most of the recent preliminary assessments and about 25 percent of all site inspections.

The original $10 million appropriation has been almost entirely expended, but the RCRA section 3012 grant program has recently been reauthorized by the Congress. On November 8, 1984, the Congress authorized $25 million per year to continue the grant program in fiscal years 1985 through 1988. Such funds have yet to be requested by EPA or appropriated by the Congress. EPA, however, plans to continue distributing funds to states to conduct site evaluations. EPA is in the process of entering into cooperative agreements with states using CERCLA funds to perform preliminary assessments and site inspections.

EPA AND STATE ROLES IN CLEANING UP SITES

In implementing CERCLA, EPA has generally limited its cleanup activities to the 786 listed or proposed NPL sites. Although EPA conducts emergency actions at non-NPL sites when there is an immediate and significant risk to health or the environment, for the most part, states have been left with the responsibility for cleaning up, if necessary, the other approximately 18,600 sites on ERRIS.

EPA's cleanup authority

CERCLA authorizes EPA (by Presidential delegation) to take basically three actions in response to a release or threatened release of a hazardous waste or substance:

(1) short-term emergency actions such as removal of drums containing hazardous waste; installation of security fencing; provision of alternative water supplies; or other actions to protect public health, welfare, or the environment from imminent and substantial damage;

(2) long-term permanent actions intended to achieve permanent cleanup or containment of the surface and subsurface contamination; and

(3) enforcement actions to compel responsible parties to take cleanup actions or recover from responsible parties the cost of fund-financed cleanup actions.

CERCLA also requires EPA to designate at least 400 sites as the top priority among known response targets. The act, however, did not limit the number of sites at which EPA could exercise the response authorities defined above.

EPA has limited its response actions at non-NPL sites

Given the finite size of the trust fund as well as the extent of EPA's operating budget for implementing CERCLA, EPA determined that priorities and criteria were needed to define what response actions would be appropriate under varying situations. The national contingency plan defines when certain cleanup actions are appropriate. Generally, EPA said that it would take emergency actions at any site where warranted, but it would limit longer term, permanent cleanup actions to only NPL sites. EPA's enforcement actions to obtain responsible party cleanups are also normally limited to NPL sites. Additionally, at any site where federal cleanup funds are spent, EPA can take action to recover the cost of cleanup from the responsible party.

The national contingency plan encourages the states to participate in all aspects of the response actions EPA elects to take. States, through cooperative agreements or contracts with EPA, can assume the lead role in administering fund-financed response actions. States can also take the lead role in pursuing enforcement actions against responsible parties. In addition, states may use state authorities to take actions at non-NPL sites.

Because of EPA's policies and the response criteria outlined in the current national contingency plan, most hazardous waste sites in the nation will not receive EPA cleanup action. As of February 1985, the NPL included 786 listed or proposed sites. This represents less than 5 percent of the approximately 19,400 potential uncontrolled hazardous waste sites that EPA has currently identified.[1] EPA estimates that its inventory will grow to approximately 25,000 potential sites over the next several years and that about 1,500 to 2,500 of these are likely to be placed on the NPL and become eligible for CERCLA-funded remedial cleanup. This estimate of likely NPL sites represents a maximum of 10 percent of all potential sites expected to be identified. The states will be responsible for responding, when necessary, under state authorities at the remaining non-NPL sites.

Non-NPL sites pose potential hazards

EPA acknowledges that many non-NPL sites pose a threat to human health; however, the location and nature of these sites suggest that individually they may affect fewer people than NPL sites. A number of these non-NPL sites have actual releases into surface water, groundwater, or air that may affect the surrounding population. In a December 1984 study, EPA provided the following examples of non-NPL sites that pose potential health and environmental threats:

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[1]As of December 31, 1984, EPA determined that 4,048 of these sites did not present a hazardous waste problem.

--Some urban non-NPL sites, as well as some sites that are isolated, may involve drums containing hazardous waste that are in good condition and do not pose an immediate threat. Over time, however, such containers may deteriorate and cause problems.

--Some sites may be isolated from populations, but could pose significant environmental damage. Related to this are sites with hazardous substance releases that may pose threats through contamination of food chains. Water used for irrigation or stock watering may, over the long term, affect plants and animals that are used for human consumption. Currently, these sites are not addressed by EPA under CERCLA if human populations are not involved or if there is not an immediate hazard.

--A number of sites that threaten human health are not listed on the NPL because direct contact is not factored into the Hazard Ranking System. These sites may involve substances such as lead or dioxin in the soil or in airborne particles that could be inhaled, ingested, or absorbed. When there is an immediate threat through direct contact, however, EPA can take a removal action to control access to the site.

--In some areas, a number of small sites with minor individual impacts may all affect the same resource. For example, a number of sites located above the same aquifer could have serious cumulative impacts on groundwater.

While these sites may not pose immediate and significant threats, they do pose potentially serious long-term health and environmental risks. Collectively, the large number of non-NPL sites could potentially affect more people than NPL sites.

States are taking on much of the responsibility for non-NPL cleanups

Since EPA plays no oversight role in state cleanups at non-NPL sites, there are relatively little data on the extent or quality of state cleanup or enforcement actions. According to the December 1983 study by the Association of State and Territorial Solid Waste Management Officials, however, most of the 42 states and the District of Columbia that responded to the survey are taking some kind of action (as resources permit) to clean up hazardous waste sites and spills that are ineligible for federal funding. The association reached the following conclusions:

--The states responding to the survey had conducted at least 157 short-term site cleanups in fiscal year 1983. (These are cleanup actions costing less than $1 million or lasting less than 6 months.) Since fiscal year 1981, these states had also initiated at least 133 long-term cleanups at sites not on the NPL and had completed 33 of these by the end of fiscal year 1983.

--The states have been especially active in responding to spills of hazardous substances and conducting or overseeing over 8,000 spill responses annually in fiscal years 1981 and 1982. Almost all of these spill responses were paid for by private parties.

--Enforcement has been a high priority among the states. States took enforcement actions at over 2,000 hazardous waste sites between January 1981 and January 1984 with considerable success; about 40 percent of the 1,537 state administrative actions had led to cleanups conducted by private parties and about 24 percent of the 356 judicial actions had led to cleanups conducted by private parties.

These site and spill cleanups were accomplished under state cleanup authorities and do not include the actions taken by the states in conjunction with EPA on Superfund cleanup actions. The data also indicate that private parties have been financing a large portion of the state-supervised hazardous substance cleanups conducted in the nation.

CONCLUSION

EPA intends to evaluate the potential hazards at all sites placed on its ERRIS inventory. Through RCRA section 3012 grants, EPA has encouraged the states to play an increasing role in conducting such evaluations.

CERCLA provides EPA with broad authority to take fund-financed actions or enforcement actions against responsible parties to clean up contaminated sites. EPA, because of limited resources, however, has chosen to generally limit the use of its authority to priority sites--currently there are 786 designated or proposed priority sites. While this limitation may be necessary, the result is that the states will be responsible for responding where necessary, under state authorities, to any hazards at non-NPL sites. These sites currently number about 18,600.

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